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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/668,113	09/18/2003	Foster D. Hinshaw	3336.1016-002	7658
21005 7590 08/09/2007 HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133			EXAMINER FLEURANTIN, JEAN B	
			ART UNIT 2162	PAPER NUMBER
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/668,113

**Applicant(s)**

HINSHAW ET AL.

**Examiner**

JEAN B. FLEURANTIN

**Art Unit**

2162

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date See Continuation Sheet.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### **DETAILED ACTION**

1. This is in response to the application filed on 1/16/2004.

Claims 1- 31 are presented for examination.

#### *Information Disclosure Statement*

The information disclosure statement (IDS) submitted on 5/26/2006, 6/23/2004, 6/11/2004, 3/05/2004 and 9/18/2003. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

#### *Drawings*

The Drawings submitted on 3/05/2004 are acknowledged.

#### *Specification Objections*

The abstract, page 54, is objected because the "Title" should not be into the same page. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6, 10, 23 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 6, 10, 23 and 30 recite "and/or" which renders the claim vague and indefinite.

*Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 1 is rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 1 of U.S. Patent Application No. 10/668,113. Although the conflicting claims are not identical, they are not patentably distinct from each other because it would have been obvious to the Patent Application No. 10/668,113 claim 1 to interchangeably "host computers" to "host processors" in order to provide most effective at reducing the amount of data that must flow through the system; see patent Application No. 10/668,113.

Claim 1 of U.S. patent Application No. 10/668,113 contain(s) every element of claim 1 of instant applications serial No. 10/668,113 and 10/667,128 and thus anticipate the claim 1 of the instant application. Claim 1 of the instant application therefore is not patently distinct from the earlier patent application claim 1 and as such as are unpatentable over obvious-type double patenting. A later patent/application claim is not patentably distinct from an earlier claim if the later claim is anticipated by the earlier claim.

Instant application 10/668,113	10/666,729	10/667,128
<p>An asymmetric data processor comprising: a first group of nodes comprising one or more host processors, each host comprising a memory, a network interface, and one or more Central Processing Units (CPUs), wherein each host accepts and responds to queries for data, and transforms such queries into one or more jobs;</p> <p>a second group of nodes comprising one or more Job Processing Units (JPUs), wherein each JPU comprises: a memory, for storing data a network interface, for receiving data and instructions a streaming data interface, for receiving data from a streaming data source;</p> <p>one or more general purpose CPUs, for responding to requests from at least one host computer in the first group, and to requests from other JPUs in the second group, and</p> <p>one or more Programmable Streaming Data Processors (PSDPs), which perform primitive functions directly on data received from the streaming data interface, each PSDP thus performing initial processing on a set of data; and a network connecting the nodes within each</p>	<p>An asymmetric data processor comprising: one or more host computers, each including a memory, a network interface and at least one CPU, each host computer being responsive to requests from end users and applications to process data;</p> <p>one or more Job Processing Units (JPUs), each having a memory, a network interface, one or more storage devices, and at least one CPU, each JPU being responsive to requests from host computers and from other JPUs to process data;</p> <p>a network enabling the host computers and the JPUs to communicate between and amongst each other, each of the host computers and JPUs forming a respective node on the network; and</p> <p>a plurality of software operators that allow each node to process data in a record-by-record, streaming fashion in which (i) for each operator in a given sequence of operators, output of the operator is input to a respective succeeding operator in a manner free of necessarily materializing</p>	<p>An asymmetric data processing system comprising: a first group of one or more host computers, each comprising a memory, a network interface and one or more Central Processing Units (CPUs), each host computer accepting and responding to requests to process data;</p> <p>a second group of two or more Job Processing Units (JPUs), operating autonomously and asynchronously from one another, each JPU consisting of a memory, a network interface, a data interface with exclusive access to one or more sources of data, and</p> <p>one or more general purpose CPUs, each JPU in the second group being responsive to requests received from a host computer to execute jobs, the jobs containing instructions for the processing of a particular subset of data under the JPU's exclusive control; and</p> <p>a network connecting the network interfaces within each group and between the two groups.</p>

group and between the two groups, and wherein a JPU receives jobs from one or most nodes in the first group, performs work requested by the job, and forms a reply.	data, and (ii) data processing follows a logical data flow and is based on readiness of a record, such that as soon as a subject record is ready record data is passed for processing from one part to a next part in the logical data flow, the flow of record data during data processing being substantially continuous so as to form a stream of record processing from operator to operator within nodes and across nodes of the network.	
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"A later patent claim is not patentably distinct from an earlier patent claim if the later claim is obvious over, or anticipated by, the earlier claim. In re Longi, 759 F.2d at 896, 225 USPQ at 651 (affirming a holding of obviousness-type double patenting because the claims at issue were obvious over claims in four prior art patents); In re Berg, 140 F.3d 1437, 46 USPQ2d at 1233 (Fed. Cir. 1998) (affirming a holding of obviousness-type double patenting where a patent application claim to a genus is anticipated by a patent claim to a species within that genus)." ELI LILLY AND COMPANY v BARR LABORATORIES, INC., United States Court of Appeals for the federal Circuit, ON PETITION FOR REHEARING EN BANC (DECIDED: May 30, 2001).

Accordingly, absent a terminal disclaimer, claims 1 and were properly rejected under the doctrine of obviousness-type double patenting." (In re Goodman (CAFC) 29 USPQ2d 2010 (12/3/1993).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-8, 10, 11 and 14-31 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,507,834 issued to Kabra et al., ("Kabra").

As per claim 1, Kabra discloses "an asymmetric data processor comprising: a first group of nodes comprising one or more host processors, each host comprising a memory, a network interface, and one or more Central Processing Units (CPUs), wherein each host accepts and responds to queries for data, and transforms such queries into one or more jobs" (i.e., user interface, SQL queries, transforms query into extended SQL syntax and transmits to data server; see col. 9, line 66 to col. 10, line 5);

"a second group of nodes comprising one or more Job Processing Units (JPUs), wherein each JPU comprises: a memory, for storing data a network interface" (i.e., communicating between processors on a symmetric multiprocessing system, memory used as the transport vehicle; see col. 7, lines 19-26 & Fig. 1), "for receiving data and instructions a streaming data interface" (see col. 10, lines 28-35), "for receiving data from a streaming data source" (see col. 8, lines 6-9);

"one or more general purpose CPUs, for responding to requests from at least one host computer in the first group, and to requests from other JPUs in the second group" (i.e., client transmits request for the master data; see col. 11, lines 50-52 and Fig. 6A, item 618), and

"one or more Programmable Streaming Data Processors (PSDPs), which perform primitive functions directly on data received from the streaming data interface" (see col. 10, lines 49-50), "each

PSDP thus performing initial processing on a set of data; and a network connecting the nodes within each group and between the two groups, and wherein a JPU receives jobs from one or most nodes in the first group, performs work requested by the job, and forms a reply" (i.e., transmitting over network from one node to another; see col. 9, lines 31-34).

As per claim 2, Kabra discloses "the data comprises structured records, and the structured records further comprise fields of various lengths and data types" (see col. 6, lines 54-58).

As per claims 3 and 6, Kabra discloses "the primitive functions performed by the PSDPs comprise field-level filtering" (see col. 10, lines 49-50).

As per claim 4, Kabra discloses "the streaming data interface is an industry-standard mass storage interface" (see col. 7, lines 44-47).

As per claims 5 and 7, in addition to claim 1, Kabra further discloses "at least one selected PSDP performs Boolean comparisons of record field values against other values" (see col. 33-37).

As per claims 8 and 10, in addition to claim 1, Kabra further discloses "the selected PSDP filters out fields of records that are not needed for particular queries, projecting forward into JPU memory those fields that are needed" (see col. 8, lines 6-9).

As per claim 11, Kabra discloses "the streaming data interface is connected to receive data from a peripheral device selected from the group consisting of disk drive, network interface, and other streaming data source" (see col. 9, line 66 to col. 10, line 2).



As per claims 18 and 19, Kabra discloses "in which the host computers in the first group contain software comprising a plan link component, which determines a query execution plan, the query execution plan further having portions that will be processed by a PSDP, portions that will be processed by a JPU after a PSDP has returned data to the JPU, and portions that will be processed by a host, after the JPU has returned data to the host group" (see col. 9, line 66 to col. 10, line 5 and col. 7, lines 38-40).

As per claims 14-17 and 20-31, the limitations of claims 14-17 and 20-31 are similar to claims 1-11 and 18-19, therefore, the limitations of claims 14-17 and 20-31 are rejected in the analysis of claims 1-11 and 19-20, and these claims are rejected on that basis.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 6,507,834 issued to Kabra et al., ("Kabra") in view of USPN 6,658,405 issued to Ozbutun ("Ozbutun").

As per claims 9 and 12, Kabra substantially discloses the claimed limitation except the PSDP output data may contain projected fields not contained in the source data, such as row address, transforms, results of expression evaluation, results of bit joins, and results of visibility tests (see Ozbutun col. 4, lines 51-53 and col. 4, lines 54-558); and a selected PSDP performs a join operation, where the field values being joined have a small range of values, so that the presence or absence of a particular value can then be encoded as a bit within a sequence of bits, whose position within the sequence corresponds to the field value (see Ozbutun col. 1, lines 57-59). It would have been obvious to a person

of ordinary skill in the art at the time the invention was made to modify the process of Kabra by results of bit joins, where the field values being joined have a small range of values, so that the presence or absence of a particular value can then be encoded as a bit within a sequence of bits, whose position within the sequence corresponds to the field value as disclosed by Ozbutun (see Ozbutun col. 1, lines 56-59). Such a modification would allow the process of Kabra to provide an index associates ranges with records that hold key field values that fall within those ranges (see Ozbutun col. 2, lines 45-46), thereby, improving the accuracy of the programmable streaming data processor for database appliance having multiple processing unit groups.

As per claim 13, the limitations of claim 13 are similar to claim 12, therefore, the limitations of claim 13 are rejected in the analysis of claim 12, and this claim is rejected on that basis.

#### *Prior Art*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Singh et al., USPN 6,477,540 relates to systems and methods for performing queries on data stored in a database.

**CONTACT INFORMATION**

2. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JEAN B. FLEURANTIN whose telephone number is 571-272-4035. The examiner can normally be reached on 7:05 to 4:35.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JOHN E BREENE can be reached on 571-272-4107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jean Bolte Fleurantin

Patent Examiner

Technology Center 2100

August 2, 2007

Continuation of Attachment(s) 3). Information Disclosure Statement(s) (PTO/SB/08), Paper No(s)/Mail Date :5/26/2006, 6/23/2004, 6/11/2004, 3/05/2004 and 9/18/2003.